

REMARKS

Present Status of Application

The Examiner is thanked for the thorough examination of the present application. The Office Action, however, tentatively rejected all examined claims. The previous restriction requirement has been made FINAL. In response, and solely for the purpose of expediting the examination of the present application, Applicant has canceled claims 11-27 and 34-38. Claims 1-10 and 28-33 remain pending, and Applicant respectfully requests reconsideration and withdrawal of the rejections of these claims for at least the following reasons.

Response to Rejections under 35 U.S.C. 102

Claims 1-9 and 28-32 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Sandstrom et al. (US Patent. No. 6883158). Among these rejected claims, claims 1 and 28 are independent claims. Therefore, the following remarks focus on these claims, as all dependent claims are patentable by virtue of their dependency on these claims.

It is well settled that a proper rejection of a claim under 35 U.S.C. §102 requires that a single prior art reference disclose each element of the claim. *See, e.g., W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983). Anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. *See e.g., In re Paulsen*, 30 F.3d 1475, 31 USPQ 2d 1671 (Fed. Cir. 1994); *In re Spada*, 911 F.2d 705, 15 USPQ 2d 1655 (Fed. Cir. 1990).

Sandstrom, however, does not disclose each and every element of independent claims 1 and 28 of the present application. Applicant, therefore, respectfully traverses this rejection on the grounds that Sandstrom does not disclose each and every element of independent claims 1 and 28. In addition, Sandstrom does not recognize the certain advantage of the claimed embodiments.

Sandstrom teaches nothing about “move target for WIP” of the claims

The Office Action (page 2) states that Sandstrom teaches “a method of fabricating a mask” (figs. 5-6, 11 and 12). However, in the disclosure of Sandstrom, Sandstrom teaches a method for error reduction in lithography using masks (see abstract of Sandstrom). Sandstrom teaches nothing about “fabricating a mask” of claims 1 and 28.

In addition, the Office Action (page 3) states that Sandstrom teaches “determining a backward modification data according to the material and the device data, and the first process data” (citing feed back loop 510; col 4, lines 35-67).

Applicant notes that, however, the feed back loop 510 of Sandstrom does not teach “determining a backward modification data according to the material and the device data, and the first process data”. Instead, according to Sandstrom, “The pattern picks up errors 501, 502 of different kinds when it is converted from a design data file 503 and a mask blank 504 to a mask 505 during a mask writing procedure 506, *i.e.* exposure, by means of a mask writer 507. The mask is thereafter used to produce an electronic device 508” (Fig. 5 and col. 4, lines 36-41), and “The error is measured by a

measuring means 511, and a filter 512 is useful to keep the feed-back from fluctuation with the noise component of the measured error.” (Fig. 5 and col. 4, lines 52-55).

Accordingly, the feedback loop 510 taught by Sandstrom is based on measurements of electronic device 508. On the contrary, the “backward modification data” of claims 1 and 28 is determined according to the material and the device data, and the first process data, wherein the first process data is collected during a first process run of a first mask. The device processed by lithography using masks plays no role in determination of the “backward modification data”. Therefore, the feed back loop 510 of Sandstrom does not disclose the “backward modification data” of the invention to one of ordinary skill in the art.

In addition, the entity 506 is indefinite according to Sandstrom. For instance, in Fig. 5 and corresponding description (such as col.4 lines 35-67), entity 506 is specified as “mask writing procedure 506”; while in Fig. 12 and corresponding description (such as col.5 lines 3-18), entity 506 is specified as “error reduction system 506”. The disclosure of entity 506 is vague in Sandstrom, and does not anticipate the claimed embodiments.

Indeed, claims 1 and 28 specifically recite:

1. A method of fabricating a mask, comprising:
providing material and device data;
defining a first manufacturing model according to the material and the device data;
performing a first process run of a first mask as defined by the first manufacturing model;
collecting a first process data during the first process run;
determining a backward modification data according to the material and the device data, and the first process data;
modifying the first manufacturing model according to the backward modification data to obtain a second manufacturing model; and

performing a second process run of a second mask as defined by the second manufacturing model.

28. A computer readable storage medium for storing a computer program providing a method for controlling mask fabrication using statistical process control analysis, the method comprising:

receiving a material, device and first process data of a mask;
defining a first manufacturing model according to the material and the device data;

determining a backward modification data according to the material, the device, and the first process data; and

modifying the first manufacturing model according to the backward modification data to obtain a second manufacturing model; and

issuing a process command, which directs a tool to process a second mask according to the second manufacturing model.

(*Emphasis added.*) Claims 1 and 28 patently define over the cited art for at least the reason that the cited art fails to disclose the features emphasized above. In this regard, the "determining a backward modification data according to the material and the device data, and the first process data" of claim 1 and 28 are not disclosed by Sandstrom.

As described, a proper rejection of a claim under 35 U.S.C. §102 requires that a single prior art reference disclose each element of the claim. Anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. Sandstrom does not disclose each element of the claims 1 and 28. Accordingly, the teachings of claims 1 and 28 are not anticipated by the cited reference, and the rejections of claims 1 and 28 should be withdrawn.

As all remaining claims depend from either claim 1 or claim 28, all claims patently define over the cited art for at least the same reasons as claims 1 and 28.

CONCLUSION

In light of the foregoing remarks, Applicant respectfully submits that election/restriction requirement has been satisfied without traverse. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested.

No fee is believed to be due in connection with this submission. If, however, any fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 20-0778.

Respectfully submitted,

/Daniel R. McClure/

By:

Daniel R. McClure
Registration No. 38,962

Thomas, Kayden, Horstemeyer & Risley, LLP
100 Galleria Pkwy, NW
Suite 1750
Atlanta, GA 30339
770-933-9500